



persico corrected feb06.ST25  
SEQUENCE LISTING

<110> Minchiotti, Gabriella  
Persico, Maria  
Parisi, Silvia

<120> METHOD FOR PROMOTING DIFFERENTIATION OF STAMINAL CELL

<130> AE 89363

<140> US 10/550,498

<141> 2005-09-20

<160> 42

<170> PatentIn version 3.3

<210> 1

<211> 22

<212> DNA

<213> Artificial

<220>

<223> primer nodal F

<220>

<221> primer\_bind

<222> (1)..(22)

<400> 1

ttccttctca ggtcacgttt gc

22

<210> 2

<211> 21

<212> DNA

<213> Artificial

<220>

<223> Primer nodal R

<220>

<221> primer\_bind

<222> (1)..(21)

<400> 2

ggtggggttg gtatcgtttc a

21

<210> 3

<211> 25

<212> DNA

<213> Artificial

<220>

<223> primer alk-4 F

<220>

<221> primer\_bind

<222> (1)..(25)

<400> 3  
aaggatccag gctctgctgt gtgcc

25

<210> 4  
<211> 26  
<212> DNA  
<213> Artificial

<220>  
<223> primer alk-4 R

<220>  
<221> primer\_bind  
<222> (1)..(26)

<400> 4  
acggatccat gtccaacctc tggcgg

26

<210> 5  
<211> 20  
<212> DNA  
<213> Artificial

<220>  
<223> primer ActRIIB F

<220>  
<221> primer\_bind  
<222> (1)..(20)

<400> 5  
atgtgccgtg gtgtcgtggt

20

<210> 6  
<211> 20  
<212> DNA  
<213> Artificial

<220>  
<223> primer ActRIIB R

<220>  
<221> primer\_bind  
<222> (1)..(20)

<400> 6  
gacctcctga tcagggatac

20

<210> 7  
<211> 24  
<212> DNA  
<213> Artificial

<220>  
<223> primer MLC2v F

<p>&lt;220&gt;                  &lt;221&gt; primer_bind                  &lt;222&gt; (1)..(24)</p> <p>&lt;400&gt; 7                  gccagaagc ggatagaagg cggg</p>	<p>24</p>
<p>&lt;210&gt; 8                  &lt;211&gt; 24                  &lt;212&gt; DNA                  &lt;213&gt; Artificial</p> <p>&lt;220&gt;                  &lt;223&gt; primer MLC2v R</p>	
<p>&lt;220&gt;                  &lt;221&gt; primer_bind                  &lt;222&gt; (1)..(24)</p> <p>&lt;400&gt; 8                  ctgtggttca gggctcagtc cttc</p>	<p>24</p>
<p>&lt;210&gt; 9                  &lt;211&gt; 24                  &lt;212&gt; DNA                  &lt;213&gt; Artificial</p> <p>&lt;220&gt;                  &lt;223&gt; primer cardiac alphaMHC F</p>	
<p>&lt;220&gt;                  &lt;221&gt; primer_bind                  &lt;222&gt; (1)..(24)</p> <p>&lt;400&gt; 9                  ggaagagtga gcggcgcac aagg</p>	<p>24</p>
<p>&lt;210&gt; 10                  &lt;211&gt; 22                  &lt;212&gt; DNA                  &lt;213&gt; Artificial</p> <p>&lt;220&gt;                  &lt;223&gt; primer cardiac alphaMHC R</p>	
<p>&lt;220&gt;                  &lt;221&gt; primer_bind                  &lt;222&gt; (1)..(22)</p> <p>&lt;400&gt; 10                  ctgctggaga gggtattcct cg</p>	<p>22</p>
<p>&lt;210&gt; 11                  &lt;211&gt; 25</p>	

<212> DNA  
<213> Artificial

<220>  
<223> primer HPRT F

<220>  
<221> primer\_bind  
<222> (1)..(25)

<400> 11  
cctgctggat tacattaaag cactg

25

<210> 12  
<211> 25  
<212> DNA  
<213> Artificial

<220>  
<223> primer HPRT R

<220>  
<221> primer\_bind  
<222> (1)..(25)

<400> 12  
cctgaagtac tcattatagt caagg

25

<210> 13  
<211> 27  
<212> DNA  
<213> Artificial

<220>  
<223> mut Asn63-Ile

<220>  
<221> primer\_bind  
<222> (1)..(27)

<400> 13  
gtaagtcgct tattaaaact tgctgtc

27

<210> 14  
<211> 27  
<212> DNA  
<213> Artificial

<220>  
<223> mut Asn63-Ile

<220>  
<221> primer\_bind  
<222> (1)..(27)

<400> 14

persico corrected feb06.ST25  
gacagcaagt tttaataagc gacttac 27

<210> 15  
<211> 38  
<212> DNA  
<213> Artificial  
  
<220>  
<223> mut Gly71-Asn

<220>  
<221> primer\_bind  
<222> (1)..(38)

<400> 15  
cttgctgtct gaatggaaac acttgcatcc tggggtcc 38

<210> 16  
<211> 38  
<212> DNA  
<213> Artificial  
  
<220>  
<223> mut Gly71-Asn

<220>  
<221> primer\_bind  
<222> (1)..(38)

<400> 16  
ggaccccagg atgcaagtgt ttccattcag acagcaag 38

<210> 17  
<211> 23  
<212> DNA  
<213> Artificial  
  
<220>  
<223> mut Thr72-Ala

<220>  
<221> primer\_bind  
<222> (1)..(23)

<400> 17  
gaatggaggg gcttgcatcc tgg 23

<210> 18  
<211> 23  
<212> DNA  
<213> Artificial  
  
<220>  
<223> mut Thr72-Ala

persico corrected feb06.ST25

<220>  
 <221> primer\_bind  
 <222> (1)..(23)

<400> 18  
 ccaggatgca agccccctcca ttc

23

<210> 19  
 <211> 29  
 <212> DNA  
 <213> Artificial

<220>  
 <223> mut Ser77-Ala

<220>  
 <221> primer\_bind  
 <222> (1)..(29)

<400> 19  
 cttgcatcct gggggccttc tgtgcctgc

29

<210> 20  
 <211> 29  
 <212> DNA  
 <213> Artificial

<220>  
 <223> mut Ser77-Ala

<220>  
 <221> primer\_bind  
 <222> (1)..(29)

<400> 20  
 gcaggcacag aaggccccca ggatgcaag

29

<210> 21  
 <211> 31  
 <212> DNA  
 <213> Artificial

<220>  
 <223> mut Phe78-Ala

<220>  
 <221> primer\_bind  
 <222> (1)..(31)

<400> 21  
 gcatcctggg gtccgcctgt gcctgccctc c

31

<210> 22  
 <211> 31  
 <212> DNA  
 <213> Artificial

persico corrected feb06.ST25

<220>  
<223> mut Phe78-Ala

<220>  
<221> primer\_bind  
<222> (1)..(31)

<400> 22  
gcatcctggg gtccgcctgt gcctgccctc c

31

<210> 23  
<211> 31  
<212> DNA  
<213> Artificial

<220>  
<223> mut Phe78-Trp

<220>  
<221> primer\_bind  
<222> (1)..(31)

<400> 23  
gcatcctggg gtcctggtgt gcctgccctc c

31

<210> 24  
<211> 31  
<212> DNA  
<213> Artificial

<220>  
<223> mut Phe78-Trp

<220>  
<221> primer\_bind  
<222> (1)..(31)

<400> 24  
ggagggcagg cacaccagga ccccaggatg c

31

<210> 25  
<211> 32  
<212> DNA  
<213> Artificial

<220>  
<223> mut His104-Ala

<220>  
<221> primer\_bind  
<222> (1)..(32)

<400> 25  
gtgggtctat cctcgctggc acctggctgc cc

32

persico corrected feb06.ST25

<210> 26  
 <211> 32  
 <212> DNA  
 <213> Artificial

<220>  
 <223> mut His104-Ala

<220>  
 <221> primer\_bind  
 <222> (1)..(32)

<400> 26  
 gggcagccag gtgccagcga ggatagaccc ac

32

<210> 27  
 <211> 21  
 <212> DNA  
 <213> Artificial

<220>  
 <223> mut Trp107-Gly

<220>  
 <221> primer\_bind  
 <222> (1)..(21)

<400> 27  
 catggcaccg ggctgccc aa g

21

<210> 28  
 <211> 21  
 <212> DNA  
 <213> Artificial

<220>  
 <223> mut Trp107-Gly

<220>  
 <221> primer\_bind  
 <222> (1)..(21)

<400> 28  
 cttgggcagc ccggtgccat g

21

<210> 29  
 <211> 31  
 <212> DNA  
 <213> Artificial

<220>  
 <223> mut Arg116-Ala

<220>  
 <221> primer\_bind



<222> (1)..(31)

<400> 29  
gtgttccctg tgcgcatgct ggcacggcca g

31

<210> 30  
<211> 31  
<212> DNA  
<213> Artificial

<220>  
<223> mut Arg116-Ala

<220>  
<221> primer\_bind  
<222> (1)..(31)

<400> 30  
ctggccgtgc cagcatgcmc acagggaaca c

31

<210> 31  
<211> 32  
<212> DNA  
<213> Artificial

<220>  
<223> mut Leu122-Asn

<220>  
<221> primer\_bind  
<222> (1)..(32)

<400> 31  
gctggcacgg ccagaaccac tgtcttcctc ag

32

<210> 32  
<211> 32  
<212> DNA  
<213> Artificial

<220>  
<223> mut Leu122-Asn

<220>  
<221> primer\_bind  
<222> (1)..(32)

<400> 32  
ctgaggaaga cagtgggtct ggccgtgcca gc

32

<210> 33  
<211> 171  
<212> PRT  
<213> Artificial

<220>

persico corrected feb06.ST25

<223> m cripto

<220>

<221> VARIANT

<222> (1)..(171)

<400> 33

Met Gly Tyr Phe Ser Ser Ser Val Val Leu Leu Val Ala Ile Ser Ser  
1 5 10 15

Ala Phe Glu Phe Gly Pro Val Ala Gly Arg Asp Leu Ala Ile Arg Asp  
20 25 30

Asn Ser Ile Trp Asp Gln Lys Glu Pro Ala Val Arg Asp Arg Ser Phe  
35 40 45

Gln Phe Val Pro Ser Val Gly Ile Gln Asn Ser Lys Ser Leu Asn Lys  
50 55 60

Thr Cys Cys Leu Asn Gly Gly Thr Cys Ile Leu Gly Ser Phe Cys Ala  
65 70 75 80

Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu His Asp Val Arg Lys  
85 90 95

Glu His Cys Gly Ser Ile Leu His Gly Thr Trp Leu Pro Lys Lys Cys  
100 105 110

Ser Leu Cys Arg Cys Trp His Gly Gln Leu His Cys Leu Pro Gln Thr  
115 120 125

Phe Leu Pro Gly Cys Asp Gly His Val Met Asp Gln Asp Leu Lys Ala  
130 135 140

Ser Arg Thr Pro Cys Gln Thr Pro Ser Val Thr Thr Thr Phe Met Leu  
145 150 155 160

Ala Gly Ala Cys Leu Phe Leu Asp Met Lys Val  
165 170

<210> 34

<211> 156

<212> PRT

<213> Artificial

<220>

<223> secreted m cripto

<220>

persico corrected feb06.ST25

<221> VARIANT  
<222> (1)..(156)

<400> 34

Met Gly Tyr Phe Ser Ser Ser Val Val Leu Leu Val Ala Ile Ser Ser  
1 5 10 15

Ala Phe Glu Phe Gly Pro Val Ala Gly Arg Asp Leu Ala Ile Arg Asp  
20 25 30

Asn Ser Ile Trp Asp Gln Lys Glu Pro Ala Val Arg Asp Arg Ser Phe  
35 40 45

Gln Phe Val Pro Ser Val Gly Ile Gln Asn Ser Lys Ser Leu Asn Lys  
50 55 60

Thr Cys Cys Leu Asn Gly Gly Thr Cys Ile Leu Gly Ser Phe Cys Ala  
65 70 75 80

Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu His Asp Val Arg Lys  
85 90 95

Glu His Cys Gly Ser Ile Leu His Gly Thr Trp Leu Pro Lys Lys Cys  
100 105 110

Ser Leu Cys Arg Cys Trp His Gly Gln Leu His Cys Leu Pro Gln Thr  
115 120 125

Phe Leu Pro Gly Cys Asp Gly His Val Met Asp Gln Asp Leu Lys Ala  
130 135 140

Ser Arg Thr Pro Cys Gln Thr Pro Ser Val Thr Thr  
145 150 155

<210> 35  
<211> 166  
<212> PRT  
<213> Artificial

<220>  
<223> m cripto His

<220>  
<221> VARIANT  
<222> (1)..(166)

<400> 35

Met Gly Tyr Phe Ser Ser Ser Val Val Leu Leu Val Ala Ile Ser Ser  
1 5 10 15

persico corrected feb06.ST25

Ala Phe Glu Phe Gly Pro Val Ala Gly Arg Asp Leu Ala Ile Arg Asp  
20 25 30

Asn Ser Ile Trp Asp Gln Lys Glu Pro Ala Val Arg Asp Arg Ser Phe  
35 40 45

Gln Phe Val Pro Ser Val Gly Ile Gln Asn Ser Lys Ser Leu Asn Lys  
50 55 60

Thr Cys Cys Leu Asn Gly Gly Thr Cys Ile Leu Gly Ser Phe Cys Ala  
65 70 75 80

Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu His Asp Val Arg Lys  
85 90 95

Glu His Cys Gly Ser Ile Leu His Gly Thr Trp Leu Pro Lys Lys Cys  
100 105 110

Ser Leu Cys Arg Cys Trp His Gly Gln Leu His Cys Leu Pro Gln Thr  
115 120 125

Phe Leu Pro Gly Cys Asp Gly His Val Met Asp Gln Asp Leu Lys Ala  
130 135 140

Ser Arg Thr Pro Cys Gln Thr Pro Ser Val Thr Thr Thr Asn Ser Gly  
145 150 155 160

His His His His His  
165

<210> 36  
<211> 129  
<212> PRT  
<213> Artificial

<220>  
<223> EGF-CFC m cripto

<220>  
<221> VARIANT  
<222> (1)..(129)

<400> 36

Met Gly Tyr Phe Ser Ser Ser Val Val Leu Leu Val Ala Ile Ser Ser  
1 5 10 15

Ala Phe Glu Phe Gly Pro Val Ala Gly Ser Val Gly Ile Gln Asn Ser  
20 25 30

persico corrected feb06.ST25

Lys Ser Leu Asn Lys Thr Cys Cys Leu Asn Gly Gly Thr Cys Ile Leu  
35 40 45

Gly Ser Phe Cys Ala Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu  
50 55 60

His Asp Val Arg Lys Glu His Cys Gly Ser Ile Leu His Gly Thr Trp  
65 70 75 80

Leu Pro Lys Lys Cys Ser Leu Cys Arg Cys Trp His Gly Gln Leu His  
85 90 95

Cys Leu Pro Gln Thr Phe Leu Pro Gly Cys Asp Gly His Val Met Asp  
100 105 110

Gln Asp Leu Lys Ala Ser Arg Thr Pro Cys Gln Thr Pro Ser Val Thr  
115 120 125

Thr

<210> 37  
<211> 139  
<212> PRT  
<213> Artificial

<220>  
<223> EGF-CFC m cripto His

<220>  
<221> VARIANT  
<222> (1)..(139)

<400> 37

Met Gly Tyr Phe Ser Ser Ser Val Val Leu Leu Val Ala Ile Ser Ser  
1 5 10 15

Ala Phe Glu Phe Gly Pro Val Ala Gly Ser Val Gly Ile Gln Asn Ser  
20 25 30

Lys Ser Leu Asn Lys Thr Cys Cys Leu Asn Gly Gly Thr Cys Ile Leu  
35 40 45

Gly Ser Phe Cys Ala Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu  
50 55 60

His Asp Val Arg Lys Glu His Cys Gly Ser Ile Leu His Gly Thr Trp  
65 70 75 80

persico corrected feb06.ST25

Leu Pro Lys Lys Cys Ser Leu Cys Arg Cys Trp His Gly Gln Leu His  
85 90 95

Cys Leu Pro Gln Thr Phe Leu Pro Gly Cys Asp Gly His Val Met Asp  
100 105 110

Gln Asp Leu Lys Ala Ser Arg Thr Pro Cys Gln Thr Pro Ser Val Thr  
115 120 125

Thr Thr Asn Ser Gly His His His His His His  
130 135

<210> 38  
<211> 69  
<212> PRT  
<213> Artificial

<220>  
<223> EGF short m cripto

<220>  
<221> VARIANT  
<222> (1)..(69)

<400> 38

Met Gly Tyr Phe Ser Ser Ser Val Val Leu Leu Val Ala Ile Ser Ser  
1 5 10 15

Ala Phe Glu Phe Gly Pro Val Ala Gly Ser Val Gly Ile Gln Asn Ser  
20 25 30

Lys Ser Leu Asn Lys Thr Cys Cys Leu Asn Gly Gly Thr Cys Ile Leu  
35 40 45

Gly Ser Phe Cys Ala Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu  
50 55 60

His Asp Val Arg Lys  
65

<210> 39  
<211> 96  
<212> PRT  
<213> Artificial

<220>  
<223> EGF long m cripto

<220>  
<221> VARIANT

persico corrected feb06.ST25

<222> (1)..(96)

<400> 39

Met Gly Tyr Phe Ser Ser Ser Val Val Leu Leu Val Ala Ile Ser Ser  
1 5 10 15

Ala Phe Glu Phe Gly Pro Val Ala Gly Arg Asp Leu Ala Ile Arg Asp  
20 25 30

Asn Ser Ile Trp Asp Gln Lys Glu Pro Ala Val Arg Asp Arg Ser Phe  
35 40 45

Gln Phe Val Pro Ser Val Gly Ile Gln Asn Ser Lys Ser Leu Asn Lys  
50 55 60

Thr Cys Cys Leu Asn Gly Gly Thr Cys Ile Leu Gly Ser Phe Cys Ala  
65 70 75 80

Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu His Asp Val Arg Lys  
85 90 95

<210> 40

<211> 188

<212> PRT

<213> Artificial

<220>

<223> h cripto

<220>

<221> VARIANT

<222> (1)..(188)

<400> 40

Met Asp Cys Arg Lys Met Ala Arg Phe Ser Tyr Ser Val Ile Trp Ile  
1 5 10 15

Met Ala Ile Ser Lys Val Phe Glu Leu Gly Leu Val Ala Gly Leu Gly  
20 25 30

His Gln Glu Phe Ala Arg Pro Ser Arg Gly Tyr Leu Ala Phe Arg Asp  
35 40 45

Asp Ser Ile Trp Pro Gln Glu Glu Pro Ala Ile Arg Pro Arg Ser Ser  
50 55 60

Gln Arg Val Pro Pro Met Gly Ile Gln His Ser Lys Glu Leu Asn Arg  
65 70 75 80

persico corrected feb06.ST25

Thr Cys Cys Leu Asn Gly Gly Thr Cys Met Leu Gly Ser Phe Cys Ala  
85 90 95

Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu His Asp Val Arg Lys  
100 105 110

Glu Asn Cys Gly Ser Val Pro His Asp Thr Trp Leu Pro Lys Lys Cys  
115 120 125

Ser Leu Cys Lys Cys Trp His Gly Gln Leu Arg Cys Phe Pro Gln Ala  
130 135 140

Phe Leu Pro Gly Cys Asp Gly Leu Val Met Asp Glu His Leu Val Ala  
145 150 155 160

Ser Arg Thr Pro Glu Leu Pro Pro Ser Ala Arg Thr Thr Thr Phe Met  
165 170 175

Leu Val Gly Ala Cys Leu Phe Leu Asp Met Lys Val  
180 185

<210> 41  
<211> 173  
<212> PRT  
<213> Artificial

<220>  
<223> h cripto secreted

<220>  
<221> VARIANT  
<222> (1)..(173)

<400> 41

Met Asp Cys Arg Lys Met Ala Arg Phe Ser Tyr Ser Val Ile Trp Ile  
1 5 10 15

Met Ala Ile Ser Lys Val Phe Glu Leu Gly Leu Val Ala Gly Leu Gly  
20 25 30

His Gln Glu Phe Ala Arg Pro Ser Arg Gly Tyr Leu Ala Phe Arg Asp  
35 40 45

Asp Ser Ile Trp Pro Gln Glu Glu Pro Ala Ile Arg Pro Arg Ser Ser  
50 55 60

Gln Arg Val Pro Pro Met Gly Ile Gln His Ser Lys Glu Leu Asn Arg  
65 70 75 80



persico corrected feb06.ST25  
 Thr Cys Cys Leu Asn Gly Gly Thr Cys Met Leu Gly Ser Phe Cys Ala  
                   85                  90                  95

Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu His Asp Val Arg Lys  
                   100                  105                  110

Glu Asn Cys Gly Ser Val Pro His Asp Thr Trp Leu Pro Lys Lys Cys  
                   115                  120                  125

Ser Leu Cys Lys Cys Trp His Gly Gln Leu Arg Cys Phe Pro Gln Ala  
           130                  135                  140

Phe Leu Pro Gly Cys Asp Gly Leu Val Met Asp Glu His Leu Val Ala  
   145                  150                  155                  160

Ser Arg Thr Pro Glu Leu Pro Pro Ser Ala Arg Thr Thr  
                   165                  170

<210> 42  
 <211> 183  
 <212> PRT  
 <213> Artificial

<220>  
 <223> h cripto secreted His

<220>  
 <221> VARIANT  
 <222> (1)..(183)

<400> 42

Met Asp Cys Arg Lys Met Ala Arg Phe Ser Tyr Ser Val Ile Trp Ile  
   1                  5                  10                  15

Met Ala Ile Ser Lys Val Phe Glu Leu Gly Leu Val Ala Gly Leu Gly  
                   20                  25                  30

His Gln Glu Phe Ala Arg Pro Ser Arg Gly Tyr Leu Ala Phe Arg Asp  
                   35                  40                  45

Asp Ser Ile Trp Pro Gln Glu Glu Pro Ala Ile Arg Pro Arg Ser Ser  
           50                  55                  60

Gln Arg Val Pro Pro Met Gly Ile Gln His Ser Lys Glu Leu Asn Arg  
   65                  70                  75                  80

Thr Cys Cys Leu Asn Gly Gly Thr Cys Met Leu Gly Ser Phe Cys Ala  
                   85                  90                  95

persico corrected feb06.ST25

Cys Pro Pro Ser Phe Tyr Gly Arg Asn Cys Glu His Asp Val Arg Lys  
 100 105 110

Glu Asn Cys Gly Ser Val Pro His Asp Thr Trp Leu Pro Lys Lys Cys  
 115 120 125

Ser Leu Cys Lys Cys Trp His Gly Gln Leu Arg Cys Phe Pro Gln Ala  
 130 135 140

Phe Leu Pro Gly Cys Asp Gly Leu Val Met Asp Glu His Leu Val Ala  
 145 150 155 160

Ser Arg Thr Pro Glu Leu Pro Pro Ser Ala Arg Thr Thr Thr Asn Ser  
 165 170 175

Gly His His His His His His  
 180